UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/652,787	08/29/2003	Paul Layzell	200208258-2	3400

7590 03/06/2006

HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER	
NGUYEN, CHAU T	

ART UNIT	PAPER NUMBER
2176	

DATE MAILED: 03/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/652,787	LAYZELL ET AL.	
	Examiner	Art Unit	
	Chau Nguyen	2176	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *05/13/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-36 are presented for examination.

ABSTRACT

2. Applicant is reminded of the proper content of an abstract of the disclosure.

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Objections

4. Claims 1, 7-8, 11-12, 20-25, 28-30, 32, and 34-36 are objected to because of the following informalities: misspelled words such as “minimising”, “optimising”, etc. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Geigel et al. (Geigel), European Patent Application, and further in view of Wong et al. (Wong) with title "A New Algorithm for Floorplan Design", published by IEEE Database.

7. As to independent claims 1, 20-21 and 36, Geigel discloses a method of composing a page, or a portion of a page, of a document, by a programmed processor comprises:

receiving a definition of a plurality of objects to be fitted on to the page and dimensional attributes of each of the objects (page 3, lines 1-19: evaluating a grouping of the image objects for distribution into a number of pages and evaluating the x and y position coordinates of each of the images objects within a page according to fitness function parameters in a genetic engine);

establishing an arrangement of the plurality of objects such that each object lies within a separate rectangle (page 3, lines 14-19: specifying an initial set of image page assignments to a genetic population to produce a present set of image page

assignments; page 7, lines 18-37: plurality of images (objects) are placed in album pages);

iterative process (page 3, lines 14-19 and page 6, lines 16-28 specifying an initial set of image page assignments to a genetic population to produce a present set of image page assignments by using an iterative process):

However, Geigel does not explicitly disclose a separate rectangle of a slicing structure dissection of a rectangular area; receiving and preparing for evaluation for the plurality of objects a function which provides a total cost of an arrangement of the plurality of objects based on one or more properties of the arrangement; and finding a slicing structure arrangement of the plurality of objects with a minimized total cost.

Wong discloses in pages 101-102 and Figure 1a that each module 1-7 is arranged in rectangle dissection which is a subdivision of a given rectangle by horizontal and vertical line segments into a seven of non-overlapping rectangles, and a slicing structure is a rectangle dissection that can be obtained by recursively cutting rectangles into a smaller rectangles (see Figure 1a). Wong also discloses computing cost of rectangles (objects) placed in the area of the floorplan design rectangle by using the cost function (page 103). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Wong and Geigel to include a separate rectangle of a slicing structure dissection of a rectangular area and providing a total cost of an arrangement of the plurality of objects based on one or more properties of the arrangement. Wong suggests that the algorithm for floorplan design

would enable us to carry out the neighborhood search effectively and provide a simultaneous minimization of area and total interconnection length in the solution.

8. As to dependent claims 2, 9-10, and 13-14 Geigel and Wong (Geigel-Wong) disclose wherein the iterative process comprises repeated application of a genetic algorithm (Geigel, page 6, lines 16-28).

9. As to dependent claim 3, Geigel-Wong disclose wherein the genetic algorithm is adapted to generate mutations of existing single arrangements and crossovers between pairs of existing arrangements (Geigel, page 6, lines 16-28).

10. As to dependent claim 4, Geigel-Wong disclose wherein one or more of the objects in the plurality of objects are fixed either in absolute position in the arrangement, or in position relative to one or more other objects in the plurality of objects (Wong, page 103, section 5: the relative positions of the modules (objects) in different floorplan realizations are essentially fixed by the given slicing structure).

11. As to dependent claim 5, Geigel-Wong disclose wherein two or more of the objects in the plurality of objects are grouped together into an object group and are constrained to lie within a group rectangle of a slicing structure dissection (Geigel, Fig. 9, page 8, line 55 – page 9, line 1).

12. As to dependent claim 6, Geigel-Wong disclose wherein the object group is fixed either in absolute position in the arrangement, or in position relative to one or more other groups or objects in the plurality of objects (Wong, page 103, section 5: the relative positions of the modules (objects) in different floorplan realizations are essentially fixed by the given slicing structure).

13. As to dependent claims 7 and 11, Geigel-Wong disclose wherein the iterative process comprises conducting optimizing an arrangement of objects within a group and then optimizing an arrangement of any groups and ungrouped objects (Geigel, page 10, lines 11-29).

14. As to dependent claims 8 and 12, Geigel-Wong disclose wherein the iterative process comprises repeatedly conducting the steps of optimizing an arrangement of objects within a group and then optimizing an arrangement of any groups and ungrouped objects (Geigel, page 6, lines 16-28 and page 10, lines 11-29).

15. As to dependent claim 15, Geigel-Wong disclose wherein one of the one or more properties of the arrangement is the total area occupied by the arrangement (Wong, page 103, section 6.2 and page 104, section 8).

16. As to dependent claim 16, Geigel-Wong disclose wherein the plurality of objects form two or more groups, and wherein one of the one or more properties is a measure

of the proximity to each other of objects which are members of the same group (Wong, page 104, section 8).

17. As to dependent claim 17, Geigel-Wong disclose wherein the proximity is measured by a total distance of lines joining one group member to another group member, such that every member of a group with more than one member has at least one line joined thereto (Wong, pages 102-103, sections 3 and 4).

18. As to dependent claim 18, Geigel-Wong disclose wherein each group member is joined by one and only one line to every other member of the same group (Wong, pages 102-103, sections 3 and 4).

19. As to dependent claim 19, Geigel-Wong disclose wherein one of the one or more properties is the aspect ratio of the arrangement (Wong, page 101, section 1).

20. As to independent claims 22, and 28-29 Geigel discloses a method of composing a page, or a portion of a page, of a document, by programmed processor comprising:

receiving a definition of a plurality of objects to be fitted on to the page and dimensional attributes of each of the objects (page 3, lines 1-19: evaluating a grouping of the image objects for distribution into a number of pages and evaluating the x and y position coordinates of each of the images objects within a page according to fitness function parameters in a genetic engine);

establishing, for the plurality of objects, evaluation of a function to represent a total area of an arrangement of the plurality of objects (page 3, lines 14-19: specifying an initial set of image page assignments to a genetic population to produce a present set of image page assignments; page 7, lines 18-37: plurality of images (objects) are placed in album pages);

However, Geigel does not explicitly disclose minimizing the function to find a minimized total area arrangement; and fitting the minimized total are arrangement to the page. Wong discloses in pages 101-102 and Figure 1a that each module 1-7 is arranged in rectangle dissection which is a subdivision of a given rectangle by horizontal and vertical line segments into a seven of non-overlapping rectangles, and a slicing structure is a rectangle dissection that can be obtained by recursively cutting rectangles into a smaller rectangles (see Figure 1a). Wong also discloses computing cost of rectangles (objects) placed in the area of the floorplan design rectangle by using the cost function (page 103). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Wong and Geigel to include minimizing the function to find a minimized total area arrangement; and fitting the minimized total are arrangement to the page. Wong suggests that the algorithm for floorplan design would enable us to carry out the neighborhood search effectively and provide a simultaneous minimization of area and total interconnection length in the solution.

21. As to dependent claim 23, Geigel-Wong disclose wherein the step of minimizing the function is constrained such that the minimized total area arrangement has a similar aspect ratio to the page, and wherein the step of fitting the minimized total area arrangement to the page comprises scaling the minimized total area arrangement (Wong discloses in pages 101-102 and Figure 1a that each module 1-7 is arranged in rectangle dissection which is a subdivision of a given rectangle by horizontal and vertical line segments into a seven of non-overlapping rectangles, and a slicing structure is a rectangle dissection that can be obtained by recursively cutting rectangles into a smaller rectangles (see Figure 1a). Wong also discloses computing cost of rectangles (objects) placed in the area of the floorplan design rectangle by using the cost function (page 103). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Wong and Geigel to include minimizing the function to find a minimized total area arrangement; and fitting the minimized total are arrangement to the page. Wong suggests that the algorithm for floorplan design would enable us to carry out the neighborhood search effectively and provide a simultaneous minimization of area and total interconnection length in the solution).

22. As to dependent claim 24, Geigel-Wong disclose wherein the step of minimizing the function is constrained such that no dimension of the minimized total area arrangement is greater than a corresponding dimension of the page, and wherein the step of fitting the minimized total area arrangement to the page comprises separating

adjacent objects according to a separation rule (Geigel, page 8, line 50 – page 9, line 23).

23. As to dependent claim 25, Geigel-Wong disclose wherein the function depends on the aspect ratio of the arrangement, such that minimization of the function produces a minimized total area arrangement which is a co optimization of total area and of the aspect ratio (Wong, page 101, section 1).

24. As to dependent claim 26, Geigel-Wong disclose wherein minimizing the function is carried out by means of an iterative process (Geigel, page 3, lines 14-19 and page 6, lines 16-28 specifying an initial set of image page assignments to a genetic population to produce a present set of image page assignments by using an iterative process).

25. As to dependent claim 27, Geigel-Wong disclose wherein the iterative process comprises repeated application of a genetic algorithm (Geigel, page 6, lines 16-28).

26. As to independent claims 30, and 34-35, Geigel discloses a method of providing a customized document having a plurality of pages comprising:

receiving a plurality of selected objects for inclusion in the document form a database of two-dimensional objects and an assignation of each of the selected objects to one of a plurality of groups, and an assignation of each of the selected objects to one of the pages of the document (page 3, lines 1-19: automated album layout method

involves the use of a set of inputs including digital images, graphics, and other 2-dimensional objects, and evaluating a grouping of the image objects for distribution into a number of pages and evaluating the x and y position coordinates of each of the images objects within a page according to fitness function parameters in a genetic engine);

producing a function dependent on a total area of the arrangement and on proximity to each other of objects in the same group and for said one of the pages of the document establishing, for the objects assigned to that page, evaluation of the function (page 3, lines 14-25: specifying an initial set of image page assignments to a genetic population to produce a present set of image page assignments, a layout evaluation module operable to test the present set of image placement parameters with a page fitness function to determine a page score; page 7, lines 18-37: plurality of images (objects) are placed in album pages);

arranging the objects assigned to the said one of the pages in an arrangement (page 7, lines 18-37: plurality of images (objects) are placed in album pages)

However, Geigel does not explicitly disclose minimize the function. Wong also discloses computing cost of rectangles (objects) placed in the area of the floorplan design rectangle by using the cost function (page 103). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Wong and Geigel to include cost function. Wong suggests that the algorithm for floorplan design would enable us to carry out the neighborhood search

effectively and provide a simultaneous minimization of area and total interconnection length in the solution.

27. As to dependent claim 31, Geigel-Wong disclose wherein the step of arranging the objects comprises dividing the page into regions and making separate arrangements in each of the regions (Geigel, page 8, line 50 – page 9, line 1).

28. As to dependent claim 32, Geigel-Wong disclose wherein said step of arranging the objects comprises establishing an arrangement of the plurality of objects such that each object lies within a separate rectangle of a slicing structure dissection of a rectangular area and finding a slicing structure arrangement of the plurality of objects with a minimized total cost by means of an iterative process (Geigel, page 3, lines 14-19 and page 6, lines 16-28 specifying an initial set of image page assignments to a genetic population to produce a present set of image page assignments by using an iterative process; Wong discloses in pages 101-102 and Figure 1a that each module 1-7 is arranged in rectangle dissection which is a subdivision of a given rectangle by horizontal and vertical line segments into a seven of non-overlapping rectangles, and a slicing structure is a rectangle dissection that can be obtained by recursively cutting rectangles into a smaller rectangles (see Figure 1a). Wong also discloses computing cost of rectangles (objects) placed in the area of the floorplan design rectangle by using the cost function (page 103). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Wong and Geigel to

include a separate rectangle of a slicing structure dissection of a rectangular area and providing a total cost of an arrangement of the plurality of objects based on one or more properties of the arrangement. Wong suggests that the algorithm for floorplan design would enable us to carry out the neighborhood search effectively and provide a simultaneous minimization of area and total interconnection length in the solution).

29. As to dependent claim 33, Geigel-Wong disclose wherein the iterative process comprises repeated application of a genetic algorithm (Geigel, page 6, lines 16-28).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chau Nguyen whose telephone number is (571) 272-4092. The Examiner can normally be reached on Monday-Friday from 8:30 am to 5:30 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Heather Herndon, can be reached at (571) 272-4136.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. On July 15, 2005, the Central Facsimile (FAX) Number will change from 703-872-9306 to 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chau Nguyen
Patent Examiner
Art Unit 2176

William L. Bashore

WILLIAM BASHORE
PRIMARY EXAMINER
3/1/2006